

D) Remarks:

Claim 10 has been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, stating that Applicants does not supply a clear definition of "skin layer for the selected microwave beam frequency". Claim 10 is further rejected under 35 U.S.C. 112, second paragraph, as being indefinite, there being no antecedent basis for this limitation in the claim.

The term "skin layer" is common terminology in the microwave sciences and industry. Accordingly, Applicant has supplied a definition thereof by amendment to the specification on page 10, making reference to a patent wherein the definition may be found. Since this is common terminology used in the industry, the added subject matter does not constitute new matter. It is therefore believed that the foregoing amendment obviates this rejection.

Claims 1, 2, 4, 9, 11 and 12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted State of the Prior Art (APA) in view of Guimont. In view of the foregoing amendments and the following remarks, reconsideration is respectfully requested.

First of all, claim 1 has been amended to more clearly define the present invention over the prior art by requiring that the microwave beam is exposed to the ceramic "quasi-optically", and that the ceramic is heated to a temperature "within an approximate range of 1900 to 2000°C". The quasi-optical delivery was the subject matter of original claim 5, which has now been canceled and the subject matter thereof

inserted into claim 1. The requirement that the temperature be “within an approximate range of 1900 to 2000°C” may be found in the specification on page 10, at line 19.

None of the references either taken alone or in combination teach quasi-optically exposing the ceramic to a microwave beam whereby an approximate temperature range for the ceramic is attained to be between approximately 1900 to 2000°C.

First of all, APA does not teach heating of a ceramic by “quasi-optically exposing said ceramic to a microwave beam”. APA radiates the ceramic by dispersed microwave.

The Examiner points out that with regard to claim 5, now canceled and incorporated into claim 1, Sklyarevich US 6,424,090 B1 teaches quasi-optical exposure of microwave beams to a ceramic. However, it is believed that this rejection has been overcome by showing that the reference is disqualified under 35 U.S.C. 103(c), as evidenced by the statement presented in section C of this Amendment. Accordingly, the foregoing amendments avoid the teachings of both the APA and Guimont references.

In addition, the Examiner states that Guimont in paragraph 20 teaches that the heating temperature, and duration of heating, must be adjusted to avoid any significant decomposition of the polymer or negative impact on the blade. However, it is respectfully submitted that Guimont’s conclusions in this regard are not applicable to the present situation. The discovery of a method to heat the coating exclusively without metal degradation is not simple or obvious and Guimont does not provide the solution and therefore is not an

appropriate reference to apply for the teaching that the heating temperature, and duration of heating must be adjusted to avoid significant decomposition of the polymer for negative impact on the blade. In this regard please note the following.

Guimont teaches one to process a coating on a metal edge by directly applying microwave energy. Following the teachings of Guimont, would require, that for exclusive heating of the coating using microwave as described in his application, many hundreds or even thousands of megawatts are required to process a single blade. For real production standards, millions per day, all the energy in the universe would not be enough. Accordingly, Guimont's claims and statements relating to microwave energy, and especially to his statement "to avoid any . . . negative impact on the blade . . ." in reality has no relation to the microwave sciences. In other words, in using the teachings of Guimont there is no way possible to prevent the metal from heating to the coating curing temperature, thereby leading to degradation regardless of whether or not Guimont desires no degradation. In any regard, the amendments to claim 1 render this argument moot.

Also the Examiner points out that Guimont states that conventional microwave generators can be used such as a gyrotron. However, there are many kinds or types of gyrotrons and they generate different kinds of microwaves, for example concentrated, non-concentrated, coherent and non-coherent microwaves etc. Applicants have amended claim 1 to more specifically point out and define the present invention whereby the gyrotron of claim 2 is required to be capable of being used quasi-optically to heat the ceramic to an approximate temperature range of 1900 to 2000°C.

With regard to claim 11 Applicant has amended the same by deleting the term “preferably”. As the specification points out, this dependent claim does require thickness.

With regard to the rejection of claim 4, Applicants’ arguments previously presented apply also in this instance.

Regarding the rejection of claims 9 and 12, it is believed that the rejection of these claims is also overcome because of the amendments and the foregoing remarks.

In addition, it is respectfully submitted that to state the limitations of claims 9 and 12 would have been obvious to routine experimentation is the application of hindsight, which of course is not permitted. It is respectfully submitted that to properly reject these claims, actual teachings of these limitations must be shown in the prior art.

With regard to the rejection of claim 3, the above referenced amendments and remarks also apply here.

Also, the applied references of Apte et al. and Trankiem et al. do not suggest or teach ceramic materials having a melting point higher than 2000°C. It is respectfully submitted that just because a reference may teach use of a similar ceramic, does not mean that particular ceramic is capable of having a melting point higher than 2000°C and it is not appropriate to make hindsight judgements. In any event,

it is believed that the foregoing amendments and remarks make this point moot in any regard, and claim 3 is considered allowable when combined with the allowable combination of claim 1.

With regard to the rejection of claims 5 - 8, 9 and 12 under 35 U.S.C. 103(a), it is now believed that these claims are also allowable in view of the foregoing amendments and remarks. In addition, Applicants have provided adequate showing under 35 U.S.C. 103(c) that the Sklyarevich is disqualified. In this regard, Applicants wish to thank the Examiner for pointing out possible options regarding this reference.

In view of the foregoing amendments and remarks, it is now believed that this application is in condition for allowance and accordingly favorable reconsideration with formal notice of allowance is requested.

Respectfully submitted,

CAROTHERS AND CAROTHERS

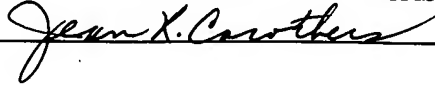


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A handwritten signature in cursive script, appearing to read "Jean X. Carothers", is written over a horizontal line.